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of the
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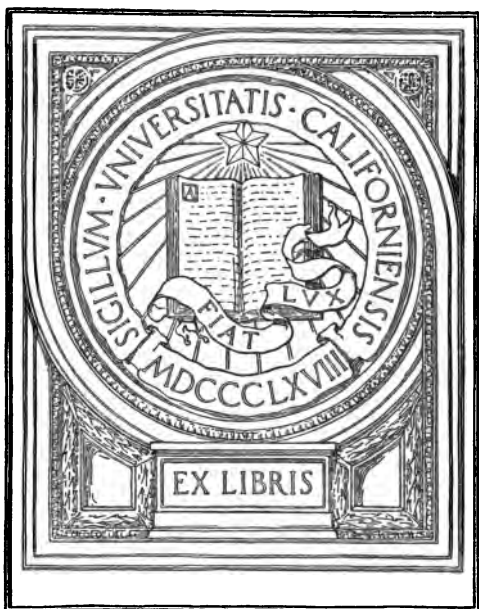
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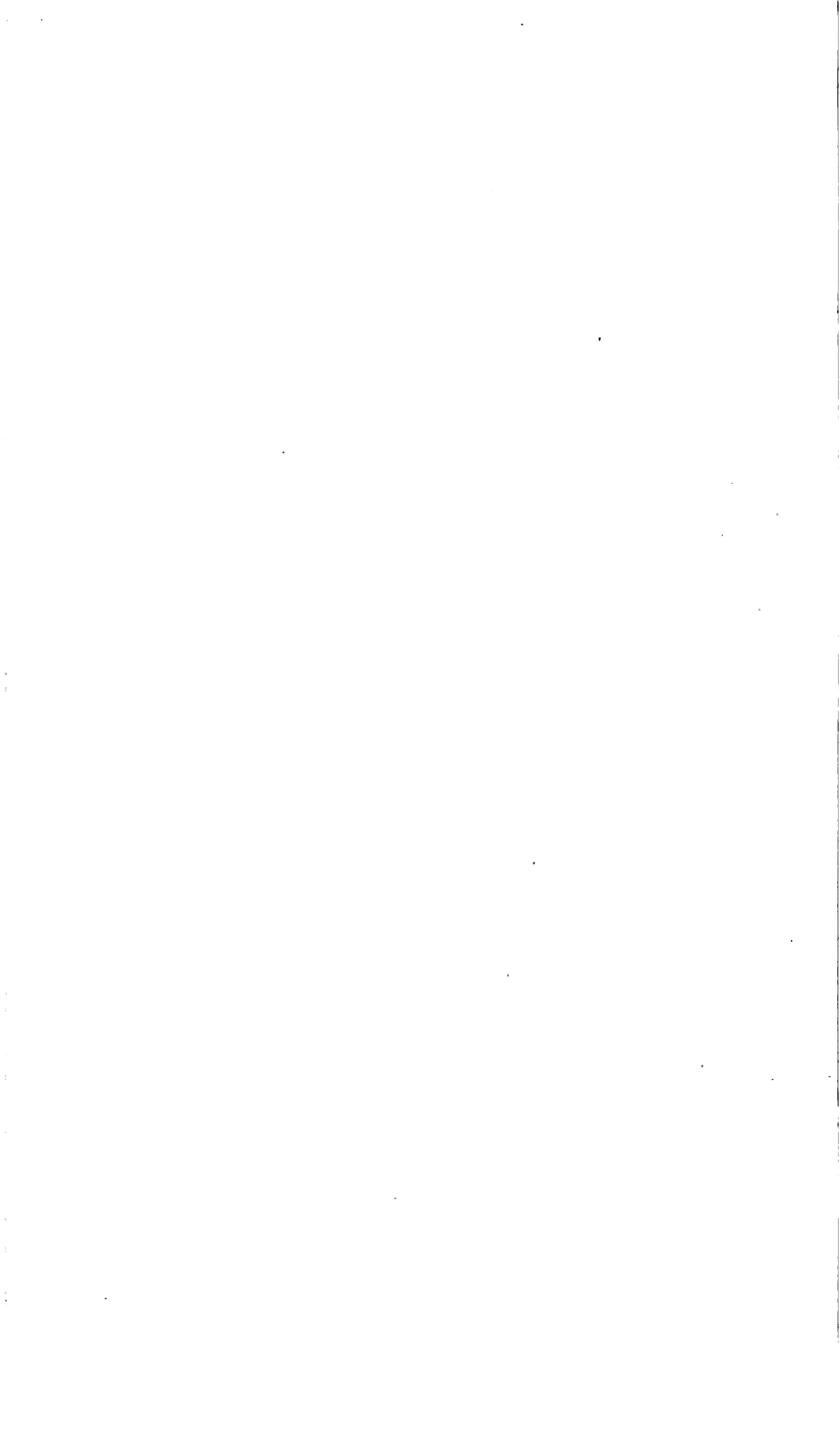


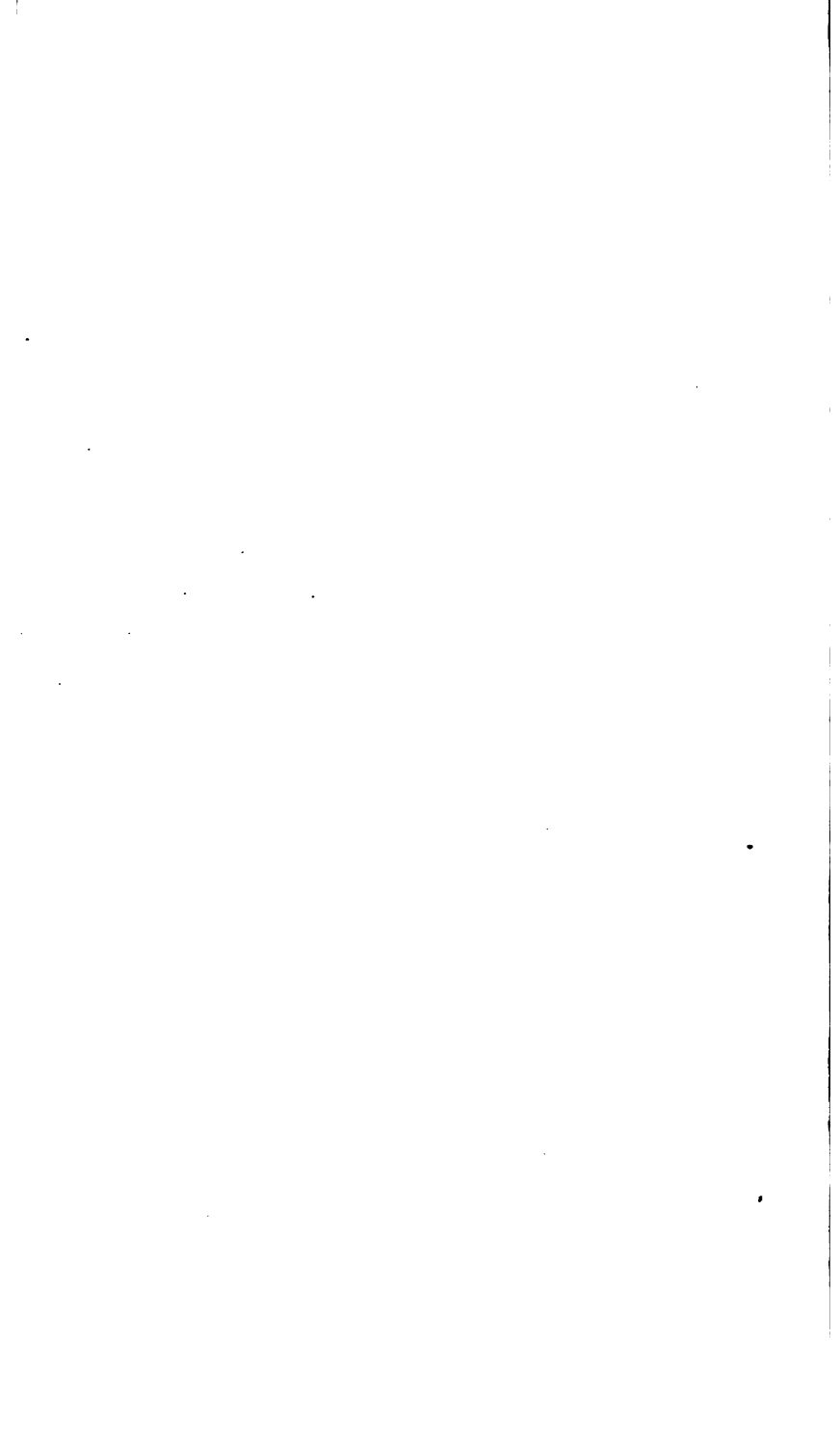
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Constituents of the Universe.

BY JOHN E. ATWOOD.

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INTRODUCTORY.

Believing that this little book contains some original, interesting and important truths, and that several great accepted and leading errors are herein successfully controverted and exposed; all of which is in line with real science and the best interests of mankind, the author has seen fit to place it before the public.





The Constituents of the Universe.

I. SPACE—extent or room—and TIME—continuation or duration—in conjunction with MOTION, are the three great essentials that comprise or constitute the universe.

II. There is no room whatever for a reasonable doubt as to these truths, each and all of them; and nothing can occur or transpire that does not involve the conjunction and actual combination of all three of them.

III. From the least possible movement, to one of the greatest magnitude, there is no exception to this inflexible condition or mode of operation.

IV. Or, in other words, MOTION, without both TIME and SPACE, is an absolute impossibility.

V. This being the case, it follows that all phenomena must necessarily be referred to



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these three sources, for the reason that there are no others; and for the additional reason that there is no rest or stand-still.

VI. The consideration of a few simple facts will assist in arriving at a better appreciation of these propositions.

VII. Motion, then, is either curved or radial.

VIII. Curved motion is also spiral.

IX. Motion exhibits changes or modifications.

X. Changes, or modifications of motion follow, or occur only through contact, bombardment, or collision of two or more movements.

XI. A single, or simple motion alone will not change its mode radically, if at all; but only a change of location in space results.

XII. Motion cannot be eliminated or destroyed, but may be modified or changed; and that is all there is to the so-called conservation of energy.



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XIII. The great motions of the universe are simply self-motions, and have no other cause for their presence.

XIV. Motion has quantity or volume, and that quantity, whether great or small, is not an indefinite amount; but on the contrary it is specific and definite, and that fact is one of the conditions that have led to the accepted but incorrect theories concerning what is usually supposed to be matter.

XV. Motion cannot increase or decrease its amount or quantity.

XVI. The radial motion from the sun, through its collision with the surface of the earth, is the source of the complex movements on this planet; manifested in vegetable and animal life and other phenomena.

XVII. Heat and light are radial motions.

XVIII. Motion offers a resistance to other motions.



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ERRORS.

I. There is no force aside from motion, and motion is not due to force.

II. There is no energy aside from motion.

III. There is no attraction of any kind.

IV. There is no inertia, rest, or stand-still.

V. There is no design.

VI. There are no laws of nature; but only certain simple truths.

VII. There is no weight; as that is simply the mode of motion from which the globular form results.

VIII. There is no chemical affinity; and chemical changes take place through the harmonious co-operation of two or more movements that are adapted to permit the changes that follow, through mingling and blending in another and different manner.

IX. There is no cohesion, and solidity is simply a real and preceptible resistance to other motions.



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X. There is no ether, and heat and light are not transmitted by any such means.

XI. There is no first cause, if indeed there is any cause whatever.



The Ether Theory.

HIS remarkable list of errors, or false assumptions, any one of which would prove a formidable obstacle in the path of real discovery, and a bar to correct conclusions has been quite generally accepted; and for that reason it seems to call for some consideration in connection with the affirmative or main propositions.

Commencing then with the Ether theory of the transmission of light, a single comparison will suffice to show its absurdity. If we take that portion of space that properly pertains to our own solar system, and compare it with the magnitude of that system, we shall find that if a single mustard seed was to represent the sun and all of the different orbs and parts that belong to it; about a cubic mile would represent the field of ether involved in the problem. A cubic mile of ether with only about one millionth of a cubic inch of material in it, to make it vibrate? It is even absurd to assume that



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only one part in a million of parts of the same size, could accomplish much in vibrating the other nine hundred and ninety-nine thousand, nine hundred and ninety-nine parts of a cubic inch. What then are we to think of this assumption, when a cubic mile or more than twenty-one trillion of cubic inches are to be vibrated by such insignificant means? But there is no vibration about it, and light is not transmitted in that manner. The supposed Ether would be an obstacle instead of an agent or assistant for such a purpose. Light is a radial motion, and not a mere vibration nor the result of a vibration. In short a vibration is nothing more than a mere local or secondary movement, if indeed it is even that; and the same may be said of the so-called Wave Motion. Neither of them are primary movements like the movements of heat and light. Both heat and light are radial, or the motion that they follow or from which they result is radial. The only other motion is the curved one, and it will be seen at a glance that this motion is not at all appropriate for such purpose. The movements of heat and light re-



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quire no agent for their transmission, as space is the ample and appropriate field in which they move in straight lines until intercepted. Nothing whatever is known of the imaginary Ether, which would have to occupy nearly all space to be of any use, and for no other purpose than to transmit light, as it were. Is the universe as lop-sided as that theory would imply? So much of one thing to so little of all things? In short, this theory does not come within the range of plausibilities; for how indeed could the light of the sun vibrate the Ether at all—which is perfectly transparent if there is any—through which the light passes, evidently unobstructed. If it takes a thousand years for the light from a remote star or sun to reach our solar system, when moving at the rate of nearly two hundred thousand miles in a second of time, is there any possible explanation of that movement but the straight line and an unobstructed path?

NO REST OR STANDSTILL.

The theory of inertia, or matter at rest, has no support whatever. It was originated





simply from the circumstance that different parts of a whole sustain the same relative position and relation to each other unless disturbed by some preceding movement. But that is not proof of inertia for the conclusive reason that the entire earth, with all things or parts included, are in rapid and ceaseless motion. It was also assumed in this connection that matter never moves unless impelled by force, and this like inertia is another error.

This false assumption about the operation of force occurred from the fact that, when the position of an object is changed with relation to other objects, a motion aside from the object thus moved precedes the movement of that object, as for example, a horse that moves a carriage. When a movement of that description ceases, that object is again considered to be at rest, or inert. These false views concerning inertia and force were entertained for the reason that a special and secondary movement only, was in that case recognized; while the vastly more important, endless movement of the entire earth, with every ob-



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ject included, was completely overlooked and ignored. For instance, if a person at the equator were trundling a wheel-barrow two miles in one hour, it would fitly illustrate the absurd conclusion about force and matter. For while this comparatively insignificant and temporary movement is taking place, another movement, of both man and wheel-barrow also occurs, of over one thousand miles an hour, due to the diurnal motion of the earth. Then there is the additional movement of the earth around the sun of over sixty thousand miles an hour, to which may be added the motion of the whole solar system, making the entire motion of the earth about a hundred thousand miles an hour.

Regarding the earth as a unit or whole then, which is strictly proper in this case at least, for what is true of the whole is true of all the parts, we clearly perceive that there is absolutely nothing at rest or inert.

The motion of the earth through space is simply SELF-MOTION, while there is no such thing as force involved outside of and inde-





pendent of that motion. That fact is very evident for other reasons.

The motion of a projectile is considered swift when moving two thousand feet in a second of time and which soon ceases at that; while the gun from which it was fired, and which is commonly believed to be at rest, has a ceaseless movement of nearly one hundred and fifty thousand feet in the same time; in common with the whole earth. To say then that all matter is inert and requires force to produce motion, because a bullet is supposed to be at rest until it is given another mere secondary motion of two thousand feet a second, and a very brief one at that, while it constantly has another motion seventy-five times greater, with no symptoms of any force being applied; is convincing evidence of a serious mistake about both force and inertia.

The assumption that force is the cause of all motion, merely because a part or parts of a whole like the earth require another motion to precede any additional movement of such part or parts to change their position or relation to



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each other, is entirely unwarranted by the real facts; and yet that is all there is to this false theory of force. If we stop to study this so-called force or energy, we shall readily discover that it has no application to anything but these mere secondary movements, and is not true even in the very cases that have led to its acceptance.

Aside from what is called attraction, which is still another blunder; for there is no attraction of any kind as will be shown, we shall find that in all cases of so-called force that the secondary movement of parts or objects is always by means of or through contact or its equivalent, and practically in a direction FROM the alleged force.

We shall find too, that the movement called force is never less than that of the object moved.

We shall further find that the thing moved will not move continuously unless the force is continuous.

We shall also learn that there are no second-



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ary motions that approach in point of speed the primary motions of the earth.

We shall discover that the objects moved can move in only one direction from the operation of a single force.

Also that such examples of this movement must have a base of operations, or foot-hold, as it were.

Let us now see how these requirements and conditions meet the case of

THE MOVEMENTS OF THE MOON.

That motion is nearly one hundred times swifter than the movement of a rifle ball, and is unceasing and regular; while the other movement is brief and irregular. It requires the equivalent of two of these forces in the case of the rifle ball, to produce its simple movement. How would it be then with the moon's peculiar motion, and what possible forces could be applied to such a movement? In the first place the moon has a motion in common with the sun's path, which is prob-



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ably a curved one, that no single force will produce. Next it has a motion with the earth around the sun, which is a spiral that would require at least three different forces to accomplish; and finally another spiral movement around the spiral path of the earth.

Remember that all of these complex movements of the moon are specific and continuous, and would require a great number of specific and continuous forces to produce them; specific and accurate beyond the operations of any mere secondary force. Now there is not the least symptom of the presence of any forces at all, and they would have no fitness or application for any such purpose. Nothing but one single force pushing the moon exactly as it moves in its remarkable course would apply at all. Just as a man may push a wheel-barrow before him. In that case we have both the wheel-barrow and the man behind it. But in the case of the moon, there is not even a trail behind it..

Now there is only one plausible view of the moon's motion, and that is unmistakably self-



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motion. Nothing else meets the requirements of the case in the least. And what is true of the moon is also true of all the different bodies in the universe.

The votaries of the inertia and force theories are by no means satisfied with their assumptions about force, and attempt to amend it with a substitute called energy, and still further by another substitute in the shape of pressure. Now it is perfectly safe to say that if there was no motion, there would be neither force, energy, pressure, nor anything of that description; and they are not the cause of any motion whatever.

THE MOTIONS OF THE UNIVERSE.

That there are only two possible motions in the universe may seem at first glance to be impossible. It is strictly true, however. If a series of marks are made with a pencil, no matter how many, they will all be either STRAIGHT or CURVED. The reason for that is because no other motion is possible. This implies that the operations of the universe are





simple, and the statement that only two motions are involved, is none the less likely to be true on that account.

Motion is either primary or secondary. The primary motions are either spiral or radial, except such modification as may occur from the circumstance that all motion is probably compound.

Both of these motions are progressive; but the spiral, unlike the radial, is a motion that seems to be chiefly, if not wholly confined or restricted to the limits of the various masses in the universe; while the radial is not thus circumscribed. The latter is the motion transmitted from one mass to others at such tremendous speed, and practically in a straight line, that being the shortest line also between two separate points. This motion is the means of connection between different masses, or the motion of transmission; and in conjunction with the spiral it is the real source also of the secondary movements, such for instance, as are manifested on the surface of the earth. This straight line motion is simple and appro-



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priate in the greatest degree in its field of operations.

THE SECONDARY MOVEMENTS

result from the collision of the radial with the spiral as the original source of these movements, and without which there would be none.

Some of the secondary movements are the results of animal motion; but even these would never occur except for the collision of the radial with the spiral as the original source of all secondary movements.

If it were not for the radial motion from the sun to the earth, the only movements on the planet would be the primary motions of the earth with the sun, around the sun, the diurnal motion, the motion from which the globular form results, and that unseen motion manifested in cohesion and chemical operations.

The spiral motion from its very nature, is the motion of contraction or concentration; while on the other hand, the radial is natur-





ally and fitly the motion of expansion, as may readily been seen from its results. It seems obvious that none of those changes so numerous and complex on the surface of the earth would ever take place if there was no motion present but the spiral movements; for such changes only occur through the presence and collision of two or more movements.

When a projectile propelled at great speed strikes an object like a target, for instance, a change takes place in proportion to the sum of the movements; although not until after the collision occurs.

In the case of the radial motion from the sun the operation is the same, as no so-called effect from that motion is produced until the earth is reached by it.

This movement from the sun is so vast and continuous that the results of the bombardment are numerous and continuous, as well as complex. Nothing else will account for them but this continued bombardment and collision.



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It is evident that this straight line motion cannot change its direction; and therefore must continue on its course unless intercepted.

This motion is neither heat nor light, for they are simply the results of the collision, or rather a part of the phenomena resulting therefrom. They merely follow, not precede the bombardment from this movement. How admirably adapted these motions appear as we study them in connection with their essentials, SPACE and TIME, to meet all the conditions, requirements, and possibilities of the universe.





The Unseen Motion of Slight Range.

WHAT the unseen motion which is supposed to pertain to atoms and molecules is also a spiral motion, and in harmony with the spiral motions of masses, there seems to be no reason to doubt. A curved motion it certainly is, and as there are only two curved motions possible, a circle and a spiral, with nothing whatever to indicate that it is a circular movement, it follows that it must necessarily be a spiral one.

In short, the evidence that it is spiral is of the most convincing character. A motion it must necessarily be; for nothing but that has any fitness or application for such purpose.

So-called chemical affinity, which is only another name for attraction, is a myth; and it is equivalent to asserting that there is no movement whatever in such a case; for no motion can be made in any such manner.



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This motion too, is one of the primary motions that cannot be made. It is simply self motion.

Chemical affinity then practically ignores the entire function of motion in the case, and yet motion is specifically what those changes are that take place in chemical operations.

The motion too, is not imparted to the parts that undergo the changes by anything not residing in those parts. Now that particular motion would most assuredly be like and in harmony with the mass movements which we know are spiral.

That movement is a very intense one. We perceive its resisting features in what is called cohesion. Its operation is plainly manifested in welding; for it is easy to comprehend that the parts which are thus united are enabled to come together in this way, as they do, and in no other.

Now, the circle being the only other curved motion has no adaptability for any such purpose as this. It is simply a non-progressive



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motion. The ring and the corkscrew aptly illustrate the fitness of one, and the unfitness of the other for practical operations.

The spiral is a penetrating, mingling, clinging, progressive movement, and at the same time a resisting one; as we can easily recognize from its manifestations in a steel rail against the motion of the locomotive.

It is doubtful about there being such a thing as a circular movement in the primary or self-motions of the universe; while there is no sort of doubt about the spiral ones.

In fact the circle only occurs in the secondary motions, and as the secondary motions simply result from the primary movements, through their co-operation, we readily see that without that co-operation they would never occur. It is impossible to see how a circular motion could blend with the motions that are spiral, to harmoniously co-operate and comprise the great whole of a sphere like the earth.

The circle in the operations of the universe



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may be fitly recognized as a cipher for which there is no use in the economy of that universe.

Another convincing item of proof that this unseen motion is spiral, will be plainly recognized in the fact that the resistance to pulling a substance apart is much greater than the resistance to crushing; which is precisely what we would expect from the clinging feature of this movement. Indeed it is not easy to see how or why there could be any tensile resistance if the motion was circular.

The movement involved in capillary attraction is easily explained by the action of this climbing, clinging motion; and very difficult by any other means.

The mingling of gases of different specific gravity can readily be accounted for in this way also.

So-called attraction of cohesion can be explained on this hypothesis and no other. The assumption that the atoms of a solid are held in position by their mutual attraction to pro-



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duce that cohesion is absurd, in view of the fact that the cohesion is neutralized entirely by separating them in so slight a degree; especially when these identical atoms are alleged to attract all others, regardless of distance.

Cohesion is due to motion only. Not a straight motion, for that produces exactly the opposite result; nor by a circular one, as cohesion cannot occur in that way; the spiral movement is the real explanation.





So-Called Attraction.

IF all the prominent errors in the field of science, attraction stands at the head.

“As certain as the laws of gravitation,” is a common expression. BUT THERE ARE NO LAWS OF GRAVITATION, AND NO ATTRACTION OF ANY KIND. What is supposed to be attraction of gravitation is nothing but that mode of motion from which the globular form results. Attraction implies that two separate and distinct things can and do compel each other to move in opposite directions, each towards the other; which is a flat impossibility.

Instead of its being a fact that one thing that has no connection with another, can compel the other thing to move towards itself, it is exactly the contrary. For instance a man can push a wheel-barrow in the direction that he is moving, but he cannot make the wheel-barrow move towards himself when he is not in contact or connection with it.

There is no attraction, and nothing can be



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influenced in a manner so absurd. One thing can only repel or impel another.

Repulsion, or the resistance that one movement opposes to another when they meet in contact, is an accomplished fact; while attraction never occurs.

In the face of the fact then, that things when moved by other things always move in precisely the opposite direction to what attraction would impart; it substantially amounts to a contradiction to assert that they can be made to move exactly the other way, as they would have to, if there is such a force as attraction.

The motion of things is harmonious, simple and consistent; not inharmonious, inconsistent and incomprehensible like assumed attraction.

There is no such thing as force, and force does not cause motion. Motion can only cause motion or change. If we were to assume that it is otherwise, we should still find that motion always precedes force, while attraction implies that force precedes motion; which is an impossibility.



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Attraction implies that a thing can operate where it is not, which is another impossibility.

While one thing cannot and does not attract another, it can, and may move towards another, simply, and consistently, by virtue of its own self motion; and that is precisely what has been mistaken for attraction of gravitation. There is no mystery or inconsistency involved in that, for it is the simple truth, which is never inconsistent.

Attraction is a mere assumption, but a huge mistake. It assumes that a single atom of matter attracts, and is in turn attracted by every atom of matter in the universe. If that were true, there could not be but one mass or body in the whole universe.

The same objections that have been made to attraction of gravitation apply to every mode of supposed attraction. The other modes are further considered in connection with items that legitimately belong to this subject.





So-Called Weight.

WEIGHT is nothing but what gravitation is assumed to be. If it is, then there is no attraction of gravitation. But the fact is, there is neither weight nor attraction. The same thing that has been mistaken for either, has been mistaken for the other; and that thing is one of the several modes or manifestations of self motion.

If so-called weight was anything but that mode of self motion that produces the globe, it would be utterly incomprehensible.

Formerly matter was considered to be ponderable or having weight, and imponderable, possessing no weight, like heat, light and electricity.

These three imponderables are now regarded as modes of motion, and with equal propriety the same view may be taken of the ponderables or those supposed to possess weight.

For instance, the earth has a motion on its



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axis, another around the sun, another with the sun, and still another motion that makes the globular form.

That particular movement has been singled out by scientists and called **WEIGHT**. But there is no more reason for that conclusion than there would be if they had selected the motion around the sun, which is a far greater motion, about nineteen miles a second.

In fact there is a better reason for calling the latter motion weight, as in that case the earth would at least weigh something in the direction that it moves, while in the other case, the earth as a whole would weigh nothing, for the very good reason that each half would just balance or off-set the other half.

If two men were pushing each other in exactly equal proportions, there would be no surplus of anything aside from the balance or effort, to be transmitted in any direction.

If an object is weighed in a given place the motion will be in precisely the opposite direction from what the motion of another object





would be if weighed at the same instant on exactly the opposite side of the earth.

This shows that with reference to anything but the center of the earth, no two objects point or move, when weighed, in the same direction.

More than this, owing to the constant shifting of the earth, the same thing never points in the same direction except for that instant of time. It is clear then, that if there was no other motion than the one called weight, there would be no other tendency or manifestation aside from that so-called weight. In that case the earth as a whole, would not weigh anything.





So-Called Design.

THE assumption so thoughtlessly and commonly made that there is evidence of DESIGN in the universe, is squarely met by the logical answer that there would be in that case an equal, if not a still better reason for assuming that a much greater designer would have been required to design the alleged designer, and so on AD INFINITUM.

But what possible connection could a designer have with space? In fact it is impossible to conceive how a universe would require that space should or could have been designed at all; and yet space is one of the great essentials, the great base of operations, as it were. Nothing could have preceded it, and instead of being designed, it would necessarily have preceded all designers that ever could be designed.

Space certainly required no designing and was not dependent upon any contingency. The same can be said of time, another of the great essentials.



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The only thing left then for an imaginary designer to design, (and there is no other breed of designers but imaginary ones) is motion. Now motion is continuous, endless and eternal, like both space and time. It would require no designer to make it, and was never made at all. It is simply self-existent.

But suppose that it was designed and made to order, as it were, the designing would amount to nothing without the making or executing; but that would have required an effort equal to, or greater than the entire sum of motion in the universe for all time. If that would not amount to an absurdity, it is difficult to conceive what would constitute one.

There is something more that is quite out of joint with this design and designer program. The difficulty is that it is purely speculative and imaginary, while no two of its votaries have the same views about it. In point of fact, there is nothing in the universe that a designer could do, and everything that he could not do. Design is merely an animal faculty, and in the very nature of things,





would have to follow, and not precede the making of a universe. This fact leaves the designing scheme in an exceedingly awkward predicament.

Design would cut no figure in making the very things that are assumed to have been designed. There is nothing fit or applicable about it, although, like other accepted shams, it has been a huge obstruction in the path of progress.

Design implies a beginning, or time when there was nothing, and a later time when something was got up out of nothing, and the legitimate result of the whole scheme amounts to nothing.

What sort of a figure would a designer cut in chemistry for instance? His best efforts in producing even an image of a person would go no farther than a tobacco sign. The whole crude scheme is merely the result of wrong views and the most superficial reasoning, or none at all; precisely that kind which is sure to mislead, and that is exactly what it has done.



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The very essentials of the universe are simply continuous, and for that reason alone, could not have been designed, nor made, neither can they be destroyed.

SPACE, TIME and MOTION, had no beginning and will have no end; and the only sensible thing to do is to recognize their presence while we study their phenomena.





So-Called First Cause.

THE theory of design appears to have a sort of substitute or competitor in the field called "First Cause," or another great unknown instigator of the universe, that of course never was instigated.

Design, as has been said, is merely planning. Simply the work of the brain. It implies no other effort. No so-called force, such as is supposed by its adherents to move worlds, even when it does nothing of the sort.

Now, if there is such a thing as a cause, it implies effort or action, always as great or greater than the effect produced. A first cause then, would logically have to be as great or greater than all future effects. It would be emphatically a contract of the first magnitude to make and keep the unknown millions of systems in the universe in such tremendous motion forever.

It is far more difficult to form a rational conception of such meaningless trash as the



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imaginary first cause, than it is to comprehend the simple rational view that space, time, and motion are eternal. We know they are present facts, and the only legitimate inference is that they always were and ever will be such.

The situation is not mended in the least by such trumpery as first cause and design, nor in fact does it require any such tinkering. All such trash is simply ridiculous and would be undeserving the least consideration, were it not unfortunately the fact that they are accepted as TRUTHS, and have proven stumbling blocks in the path of knowledge and progress.





So-Called Laws of Nature.

IN addition to these assumptions concerning design and first cause, there is another near relative labelled "The Laws of Nature;" and this, like the others, is still another bar and not an aid to discovery.

This indefinite and unmeaning phrase appears to be susceptible of indicating almost anything but the real facts in the case. It is frequently made use of to express not what is actually known, but rather something merely guessed at. The expression is inappropriate and misleading, for there is no such thing as the laws of nature in point of fact, whatever else there may be. Of course there are truths regarding the universe, and a simple statement of them is far better, as it conveys no false impression.

Those who have been freely referring to these imaginary laws have made a series of almost ludicrous mistakes, with scarcely a single truth in their assumptions about the actual operations of the universe.





Something like a dozen great leading errors have been proclaimed as facts, and generally accepted; practically stifling further inquiry and investigation in this all-important line. There could hardly be another such object lesson as these false assumptions furnish of the truth of the assertion that error is even worse than ignorance; as the latter at least leaves the door open to further investigation.





So-Called Matter.

IS there such a thing in the universe as MATTER is supposed to be? To that question the stereotyped answer will be, "Certainly there is." But that, after all, amounts to nothing in settling this question. If it is indeed a fact that there is matter, it is, unfortunately not a self-evident one like SPACE, TIME or MOTION; and this, of itself, is a very serious feature in the case; for if it is really true, it would certainly seem that it ought to be the plainest, clearest, and most convincing of all truths; in short, a truth that would need no evidence to support it; while, at the same time, it would have ample evidence in its behalf. On the contrary, it requires proof to establish that it is a reality, and not an error.

Now the evidence offered to prove that there is any matter, is singularly weak and unconvincing; while, on the other hand, the objections appear to be of the most formidable kind.





One of the items chiefly relied upon for proof, is that it appeals directly to the senses. But that is not conclusive for these reasons: The senses, unaided by analytical reasoning frequently lead us astray, as for instance, with reference to the form of the earth, on the question of inertia, and in numerous other cases.

A still better reason, though, for not accepting this as evidence, is because motion does the same thing in the very same cases that are relied upon to prove the presence of matter. Now, in consideration of the fact that we know there is motion, and don't know there is matter, the inference is a very plausible one that it is motion alone, and not matter at all, that is proved by this circumstance.

As motion is certainly recognized through the senses, and as superfluities are not known to exist in the simple and efficient economy of the universe, the presumption is against the existence of matter so far as this item goes, or at least not in favor of it.

Another item also relied on to prove that there is matter, is that it occupies space, or





takes up room. In answer to that, we will admit that if there is matter, it must necessarily occupy space, or take up room. There is no doubt whatever about the room, but how do we know that it is occupied by matter? Motion again does the same thing; for that occupies space, or takes up room.

When a solid explodes, hundreds of times more room is occupied by the motion that follows the change from the solid to the gas; yet there was the same amount of motion in the solid before the explosion that there was in the gas at the time of the explosion.

When a given quantity of carbon, say twelve pounds, unite with thirty-two pounds of oxygen to produce forty-four pounds of carbon dioxide, there is after the change has occurred, precisely the same amount of motion in the forty-four pounds of carbon dioxide that was in the twelve pounds of carbon and the thirty-two pounds of oxygen before the chemical change occurred. That fact is established convincingly by the motion called weight remaining the same.





When carbon dioxide is produced by combustion, a collision occurs between the oxygen and carbon that is just equal in amount to the motion that is arrested by that occurrence, precisely as if two bullets in their flight should meet in mid-air.

If a piston is raised in a cylinder a certain distance, by the motion of a gas, the same piston will be raised twice that distance with the same quantity of gas, by raising the temperature a sufficient degree; but how could that be accomplished except for the reason that motion takes up room?

The motion called heat always takes up room in proportion to the quantity in any given case. Space is absolutely essential to motion, and the earth occupies a quantity of space in its yearly motion around the sun of probably more than a hundred thousand times its own quantity or volume. As motion has volume or quantity, the rational inference seems to be that it has been mistaken for matter in this very particular, and principally for this very same reason.





The third item of proof ventured in behalf of matter is that it has weight. But there is no weight, for that is simply one of the several manifestations of mass-motion, that has less claim to be called weight than other motions that we know to have none. THAT motion is a balanced motion, and the whole earth weighs nothing for that reason, and also for the additional reason that NO MODE OF MOTION has any weight.

Now, the believers in the existence of matter recognize that truth when they admit that heat, light and electricity are only different modes of motion. They say that all matter has weight, and in so doing, they draw a line between these three items and what they call matter. As there is no such thing as weight, they must consistently admit that there is nothing but motion, or be obliged to accept the proposition that heat, light and electricity are also matter. In point of fact, but one conclusion is admissible; either they are all matter, or they are all motion and motion only.



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Now, as there is nothing whatever to prove that the imponderables are **MATTER**, while there is ample evidence that they are simply **MOTION**; it follows logically that the supposed ponderables are like the others, nothing but motion.

One thing at least seems to be pretty clear about the proof offered that there is matter, and that is the absence of any weight at all in that evidence. The fact that chemical compounds are made up of supposed atoms, or in some definite manner, as they undoubtedly are, is also relied on to establish the existence of matter; but this like the other items already examined, amounts to nothing for the same reason that has been given in the previous example, that **MOTION** does just what is here alleged of **MATTER**.

The motion called weight we know indicates the amount of movement manifested in that way with perfect accuracy. While the diurnal motion is equally specific and accurate the motion around the sun is also just as definite and reliable. What then, could be more reasonable than the inference that the unseen



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motion of chemistry and cohesion is equally definite and precise? In fact, it is difficult to resist that conclusion, for it would be exceedingly likely that this motion would be in perfect harmony with all the other primary motions of the universe.

This precision of movement, this definite feature of all known modes of motion, which is in all probability true of the unseen, appears to be just what has caused the chemist's mistake about his atoms and matter, and of which we know nothing whatever.

Right here we will assume that this precise, definite, unseen motion, which is a part of the great primary movement of the planet, is the corner stone, as it were, of chemistry. It is fortunate for the practical chemist that his processes are not like his theories, for if they were he would have nothing but mixtures instead of chemical compounds, so radically different from his assumed elements. This, at least, is all that could reasonably be expected of his imaginary atom, as will clearly appear.





The chemist regards the supposed matter as existing in atoms and molecules; masses being aggregations of molecules. He also believes that all matter is made up of some sixty odd elements, out of which a vast and varied number of compounds are formed chemically. The elements are held to consist exclusively of the same kind of atoms, while the compounds have two or more atoms of a different kind. He discovers that the most radical changes take place when a compound is produced by a chemical process, the compound being markedly different from the elements that compose it. He finds that this radical change does not take place in a simple mixture of different elements, but only occurs when these different elements unite or combine to produce a chemical compound. The chemical operation is supposed to be due to a special mode of so-called attraction labelled chemical affinity.

From this statement it appears that whatever change occurs, it is not to be attributed to the molecule. It must necessarily be due to the atoms then, and this last item deserves the





most serious consideration because the atom must be either changeable, or unchangeable. Now it matters not which view is taken of it, for EITHER ONE leaves the present chemical theory in a pretty bad fix.

If it is assumed that the atoms are changeable, then there is no longer an element. It is in fact, precisely the reason why the chemist regards the atoms as unchangeable that he believes they are elementary and not compound. He cannot consistently take any other view than that the atoms are fixed and unalterable; and that is exactly the view he does take of them. Now the difficulty with this view of the atom is that it is absolutely impossible for a chemical change to occur under that condition; because with unchangeable atoms or quantities, it would be impossible to make anything but a mixture.

This will plainly appear if a quantity of shot of different material are mingled together, when a mixture ONLY will result from the experiment; nor will it make any difference, no matter what the size of the parts may be. All



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of this would prove just the same if the supposed atoms were substituted for the shot. This leaves the present theory of chemical changes in a ridiculous plight; for this theory literally assumes that those changes will result when absolutely unchangeable atoms or quantities are employed, and in conjunction with an imaginary force or assistant called chemical affinity, or in other words, with atoms that can't change, and a motion that can't move. Was there ever anything more balky?

MOTION EXPLAINS ALL PHENOMENA.

While the theory of matter is beset with such fatal objections, and utterly fails to account for the actual manifestations in the universe, there are no phenomena that the known constituents, Space, Time and Motion will not account for, and the reason for this is, that there is nothing but these three essentials. All of the phenomena in the universe are but motion and its changes, and MOTION is the only item that can possibly change.





The theory of matter and atoms, or elements, gets a set-back in by far the most important and most abundant of all the elements, oxygen, which is about two-thirds of the whole, for this element is recognized in two forms, when there could not possibly be but one if the theory were true. This doubled-faced characteristic of an element is called allotropism.

Sulphur is in the same predicament, while phosphorus, when simply heated to about 240 degrees, centigrade, for a considerable time, under conditions that preclude chemical changes, is radically changed in twelve important particulars; and with an addition of about twenty degrees more of heat, is changed back to its original state. How can all this, or any of it, be explained by such a theory? Oxygen being two-thirds of the whole, with nearly half of the supposed elements a mere trifle, furnishes another hint that the atomic theory is false.

If there is any matter, there is a point at which division must necessarily stop, or there would be no atoms left, and hence no molecules.



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Now, wherever in point of minuteness the atoms would stop, motion would not necessarily stop at any such a point, and that fact, taken in connection with some of the phenomena pertaining to life, plainly indicates that such phenomena are due, not to clumsy, inert matter, but to REAL LIVE MOTION.

The very fact that atoms would have to be indivisible, would not be at all in keeping with either of the three great essentials; for they are all infinitely divisible. Here, then, is a radical departure from the characteristics of the known constituents of the universe, and that, too, suggests that there are no atoms; therefore no matter.

In point of fact, if there are any phenomena that the theory of atoms and matter will account for, they are not apparent; while Space, Time and Motion must and will account for all.

The science of chemistry is all right practically, and all wrong theoretically. In assuming that there is matter as the present theory does, consisting of compounds and elements





that make up those compounds, and the whole made up of atoms, obstacles are encountered at once; for the atoms will not make the chemical changes at all, as they are not convertible, even if there are any. There is no way out of the predicament in which this theory leaves us, for, if there are no atoms there is no matter, and if there are atoms, they will not make changes and hence no compounds; and if they can make no changes and no compounds, then where is the matter?

When the chemist finds a radical difference between compounds composed of the same kind and the same number of atoms, and finds no better reason for that difference than a different arrangement of those atoms in space, he ought to be able to work out all his problems in practical chemistry with nothing but a sort of checker board, as that would be in line with his theory.

When he mingles iron and sulphur, no matter how thoroughly or how fine the division of the materials, and obtains nothing but a simple mixture, we have the theory of chemical





changes fully and fairly illustrated. When he heats those materials sufficiently a radical change takes place, and a real chemical compound is the result; which no amount of mixing and mingling would imitate.

While the chemist always requires two or more of his theoretical elements in connection with his balky movement to produce nothing but a mixture, there is at the same time, in spite of his absurd theories, a mode of operation or manifestation from which real chemical changes result. These changes are not mere mixtures, in which nothing different appears; for they are radical in the extreme. Now, the reason why these radical changes, usually termed chemical, manifest themselves, has already been truthfully stated in saying that changes only occur from collision or arrested motion.

When mechanical motion alone can be changed to electrical movement in the manner here indicated, giving us a change as radical as anything chemistry discloses, and all this with but one item, instead of two or more



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assumed elements, we have the real key to the whole of these changes. When the electrical movement can in this identical way be made to assume the motions called heat, and light; we have this statement completely vindicated. When, again, these motions are reversed, the evidence is overwhelming.

Special attention is here directed to the significant fact that in all of these marked and specific changes, nothing whatever is involved but MOTION, DURING TIME, and IN SPACE. Matter, it will be clearly perceived, was not involved in the least in these known operations. Inasmuch, then, as the imaginary matter is so completely ignored and discredited by the action of these imponderables, and in consideration of the fact that the supposed ponderables, are after all, really imponderable like the others, and knowing also that the imponderables are only motion, what possible ground is then left for the assumption that there is any such thing as matter?





Electricity.

THIS manifestation, or mode of motion — for it is nothing more nor less — has proved to be one of the most puzzling problems in the whole range of science. It has been regarded as a kind of imponderable matter, and as nothing but very FINE MATTER produced by friction. It is at present treated by some as force, energy, or pressure, and by most people as a profound mystery. There is nothing mysterious about any truth, as we can readily perceive when that truth is recognized; while all mystery is confined strictly to the unknown.

One reason why this motion is so little understood is because it is one of the invisible movements. If it could be seen, as we see a current or stream of water, or a gas having color, most of the mystery would vanish. There is no force, energy, or pressure involved, aside from, or in addition to the simple movement itself. It has volume, or quantity, is measurable like other motions, and can be changed or converted into other motions.





This mode of motion has greater range than that manifested in cohesion and chemical changes. It is the mode that bears the closest resemblance to the radial, but unlike that seems to be confined to the limits of the mass on which it is manifested.

It is a movement of great velocity as compared to any other motion made use of in the arts, and for that reason a proportionately less quantity is required to accomplish the same amount of work or to overcome the same resistance.

The most important feature of this motion is its convenience and adaptability to various requirements, many of which it would be difficult if not impossible to accomplish by any other means; and in the future, it will prove to be of immeasurable benefit to mankind.

In the practical use and transmission of this motion, two things are essential, conductors and insulation; for without the agency of both, the current could not be controlled. By means of conductors, the current can be made to move





to the desired position, as a current of water may be conveyed in a tube, or a stream by its banks; while insulation serves to keep the electric current substantially confined to the line of the conductor.

A current of water will meet a resistance in the shape of a water-wheel and cause it to revolve, and that in turn will communicate motion to machinery; while a current of electricity will revolve the armature of a motor, which in turn will move vehicles and machinery that resist this movement.

The current of water and the electric current are alike continuous if the supply is continuous. Both can be divided, and made to perform various service at the same time; and when they are both comprehended there will be no more mystery about the one than the other.

The distinction between the term static and dynamic, when applied to this motion, seems to signify in the former, nothing more than the circumstance that a current is restrained





by insulation, as a flow of water is by a dam. That it is a real motion is proved by the fact that what is called induction is only a portion of the current that is not confined strictly to the conductor, and which in turn may be transmitted by a parallel conductor, in an opposite direction, and that has no other current.

There seems to be no limit to the imaginary wonders that are attributed to this simple and convenient mode of motion by those would-be philosophers who fail to comprehend it. Some of them claim that there is nothing else in the whole universe. How absurd that claim appears in view of the fact that when, for instance, this motion is changed into other movements like heat and light by a sufficient resistance or obstruction in its path, it is no longer regarded as electricity, even by the very ones who make this ridiculous claim. When it is electricity it is not heat, and when it is heat it is not electricity; but in each and every case it is only motion, differently manifested. Neither heat, electricity nor both of them



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comprise the entire sum of motion; for there are other modes, and a mere part like the electrical movement is by no means the sum.

This motion well illustrates the manner in which changes occur that are so radically different from each other. It can be changed into heat and light; also into mechanical motion; or, a portion into one of these movements and the balance of the current, at the same time, into the other.

Although this motion is so serviceable, there is at present no better method of producing it than by MECHANICAL motion. Were it not for this mode of motion, a time would probably arrive when this world would be unable to advance further in civilization; or even to hold its own in that respect.

COMPLEX SECONDARY MOVEMENTS ON THE EARTH'S SURFACE.

While the primary motions are few and simple, the SECONDARY are numerous and complex; and one of the chief reasons for the existence and prevalence of the various errors in





vogue, is that too much importance has been attached to these motions, and their phenomena; and too little to the vastly more important primary motions. The chief aim has been to measure the universe by these comparatively insignificant secondary motions. When a projectile is fired from a cannon at a target, no change occurs in the target until the collision from the projectile takes place; and then changes follow the impact. If this operation was continuous, the changes of course would be continuous. Now the surface of the earth is being continually bombarded by the radial motion from the sun, without which there would be only the primary motions of the earth with the sun, around the same, the diurnal motion, the one called weight, and that unseen movement of slight range. No secondary motions and none of the complex phenomena now so abundantly manifested would occur; and of course no vegetable or animal life would result.





A Suggestion Regarding the Heat from the Sun.

THE sun being the centre of the solar system, has less mass motion than the orbs that move with and around it. Take the earth, for example, and the difference is nearly nineteen miles a second. If the earth was suddenly arrested when moving at such speed, that motion would be changed into heat and light; as we see when the electric movement is suddenly arrested. We have seen, too, that a portion of a movement can be manifested in heat and light, and the balance in other motions at the same time. If, then, the whole sum of the sun's motion is substantially the same in proportion to its size as that of the earth, which seems reasonable, and its mass motion nineteen miles a second less than that of the earth, there would then be the equivalent of that amount of arrested motion continuously, which the sun could not manifest except by the radial movement of heat and light. This reason for the continuous radial movement from the sun is not only plausible, but it seems adequate.





The Measurement of Motion.

IN any given movement this is determined simply by the volume of that movement in connection with the space, or distance through which it moves, and the time occupied in the movement. Neither of these three essentials can be omitted. When the movement called weight is involved, the estimate is practically the same as in the case of any other motion, simply for the reason that weight is motion as well as any other movement. That unseen motion called electricity, is subject to precisely the same inflexible conditions, and this explains why a trolley wire of such slight dimensions is able to transmit such an enormous amount of so-called force or power. It is due to the tremendous speed of this motion. The operation is the same in all cases, and of course the greater the speed, the less the volume or quantity of motion required to produce the same result.





Perpetual Motion.

THE perpetual motion hobby is ridden by many who are supposed to be too well informed to waste their lives in trying to accomplish the impossible; while there is no telling how many there are astride this hobby who lack the requisite information to steer clear of all such impractical schemes.

Among all the votaries of perpetual motion, it is doubtful if even one can be found who does not fully understand that a pendulum, a scale beam, or vacuum pump cannot be made to move continuously except a continuous motion is applied. The reason why they do not attempt to make perpetual motion with these simple devices is because they understand them; and yet the pendulum at least can be made to continue a given motion with a given impulse longer than any other device, but it will not move perpetually.

This simple fact alone ought to deter any one from attempting to make any machine with a view to perpetual motion. This class of in-





ventors, instead of keeping within practical lines, where practical results are possible, will waste their time and means in trying to make something operate that they do not comprehend. If they can see through a thing clearly, they never try to make perpetual motion with it, for then they know better. But they add to and complicate whatever they are contriving to make move perpetually, until they no longer comprehend what its mode of operation would be; and then they are convinced that they have succeeded.

Even when they know that a hundred pounds will not raise another hundred, but only balance it, they will still try to make some (to them) incomprehensible complexity operate as a perpetual motion by means of so-called weights. The vacuum is the favorite source from which these impractical schemers attempt to obtain perpetual motion; simply because it is more difficult to understand than the familiar so-called weights.

Other things have been and will be tried; but there is not, and never will be a machine





or device that will solve such a problem as perpetual motion.

One of the principal reasons why nothing is possible in this line, is that no machine or device can make a motion itself. It can only manifest motion when a preceding movement has been applied, and will not move after that motion ceases except through acquired momentum.

The grand difficulty with every motion of this kind is that it is MERELY A SECONDARY MOTION, WHICH IS NEVER PERPETUAL. While the primary motions are perpetual, the secondary are not, as has been heretofore pointed out. No application can be made of the primary to a machine, and yet every machine itself partakes of the primary movements of the earth of which it is a part; and by virtue of one motion alone, the one around the sun, is constantly moving nearly nineteen miles in a second; but this, although perpetual while the machine lasts, is not the one of which the perpetual motion philosophers are in pursuit.



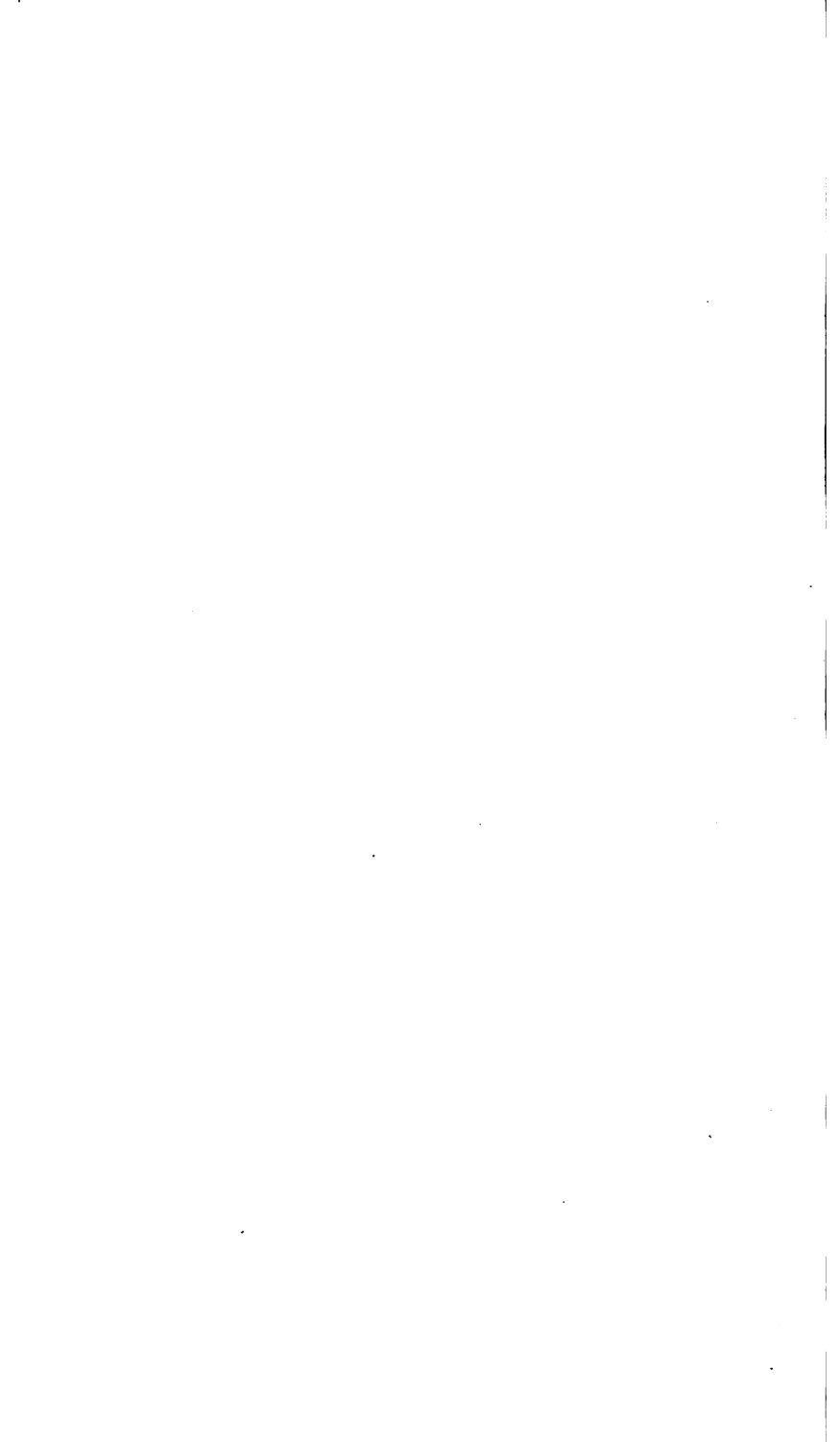


It is not a pleasant spectacle to see an honest inventor in severe financial straits wasting his time, his means, his health, and even his life, in such a vain and useless struggle, which can yield no possible returns but poverty or insanity; or, in the end, perhaps, both of these unwelcome conditions. There is also another unpleasant spectacle in connection with this perpetual motion folly, occasionally manifested by some designing, dishonest and pretended inventor, in the shape of a shameless fraud; for there is nothing possible but folly and fraud in this uninviting and unrequiting desert of invention.

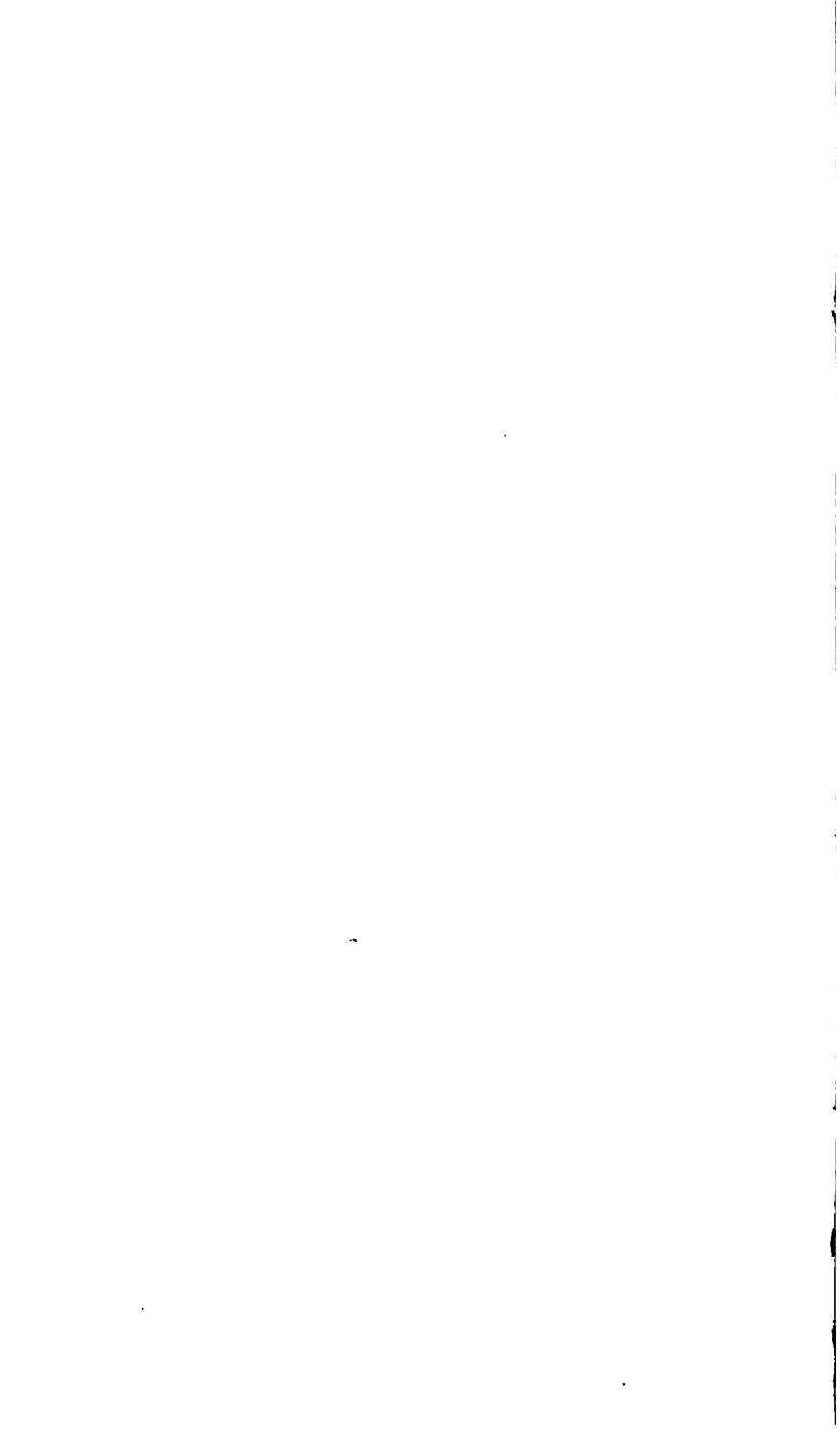
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